REMARKS

Claims 1-7 and 9-20 are pending in the present application. Claim 1 is in independent form. Claims 5 and 10-12 are amended. Claims 17-20 are newly-added. Claim 8 is cancelled. In view of the above amendments and the following remarks, favorable reconsideration and allowance of the present application is respectfully requested.

Applicants note that the Examiner has not indicated whether the drawings filed on September 20, 2005 are accepted, or objected to, by the Examiner. As there is no discussion in the *Detailed Action* indicating that the drawings are objected to, Applicants will assume that the drawings are acceptable unless indicated otherwise in the next Patent Office communication.

I. "PERFECTED" CLAIM PRIORITY

As evidenced on WO 2004/083145 (the corresponding WIPO publication of the present national phase application), Applicants note that the present application claims the benefit of priority to Japanese Patent Application No. 2003-078846, filed on March 20, 2003 in the Japanese Property Office.

By the present Amendment, Applicants enclose an English translation of Japanese Patent Application No. 2003-078846, along with a *Statement of Accurate Translation* signed by the translator.

Thus, pursuant to 37 C.F.R. §1.55(a)(4)(B), Applicants have "perfected" the claim of priority to Japanese Patent Application No. 2003-078846.

II. 35 U.S.C. §112, SECOND PARAGRAPH REJECTION

Claims 5 and 16 stand rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully traverse the rejection.

The rejection states that "[i]t is unclear to the examiner if 'then' refers to after the sintering step, or after the repeated acid treatment and before the sintering. It is also unclear to the examiner the distinction between the heat and acid treatment steps in between the acid-treatment and sintering steps as recited in instant claim 5." Action, p. 2.

By the present Amendment, claim 5 has been amended to recite that "the borosilicate glass is subjected repeatedly to another heat treatment and another acid treatment between the acid-treatment step and the sintering step." The amendments to claim 5 are supported, at least, by the formation of Glass 6 in Example 3 of the original Specification. See page 18, line 19 – page 19, line 4.

In particular, in the Example 3, a phase-separating step, an acid-treatment step, another heat treatment, another acid treatment, yet another heat treatment, an acid treatment using acid containing ethylenediamine tetraacetic acid and a sintering step are performed in this order. That is, after the first acid treatment step is performed, an acid treatment using an acid containing ethylenediamine tetraacetic acid is not performed if a combination of a heat treatment and an acid treatment is going to be repeated (*i.e.*, performed more than one time), but the acid treatment using the acid containing ethylenediamine tetraacetic

acid is carried out as the acid treatment in the last combination of heat treatment and acid treatment.

The amendments to claim 5 establish that the "acid-treatment step," the repeated combination of the "another heat treatment and another acid treatment," and the "sintering step" are carried out in this order. Further, new claim 17 establishes the order in which the "acid treatment by using acid containing ethylenediamine tetraacetic acid" is performed in relation to the other steps. Thus, the ambiguity regarding the term "then" has been clarified.

The rejection further states that "[t]he term 'repeatedly' in claim 5 is a relative term which renders the claim indefinite. The term 'repeatedly' is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention." Action, p. 2.

However, with regard to the formation of Glass 6 in Example 3, the instant Specification states that,

> The porous glass which had been subjected to acid treatment for 24 to 72 hours at 90°C was heated for 15 hours at 300°C. Thereafter, the porous glass was contained together with 3N nitric acid into an airtight container and was subjected to acid treatment for 24 hours at 90°C. The acid-treated porous glass was further heated for 15 hours at 300°C. Thereafter, the porous glass was subjected to acid treatment for 24 hours at 90°C by using acid containing 1% of ethylenediamine tetraacetic acid (EDTA).
>
> Emphasis Added.

Therefore, the Specification does provide a standard for ascertaining the requisite degree of the term "repeatedly." Accordingly, one of ordinary skill in the art would understand what is claimed in light of the Specification.

For at least these above reasons, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 5 and 16.

IV. CITED ART REJECTIONS

(A) Claims 1, 2 and 6 stand rejected under 35 U.S.C. §102(b) as allegedly being unpatentable over JP 2003-313050 (hereinafter "JP '050"). Applicants respectfully traverse the rejection.

i. JP '050

Applicants submit that JP '050 no longer qualifies as art against the present application.

Namely, JP '050 does not qualify as art under §102(b) because the publication date of JP '050 (November 6, 2003) is not more than one year prior to the effective filing date of the present application (March 19, 2004, the filing date of PCT/JP2004/003810).[1]

JP '050 does not qualify as art under §102(e) because JP '050 is not a WIPO publication, or a U.S. patent or publication. (Applicants note that JP '050 does not qualify as art under §§102(c), (d), (f) and (g) for obvious reasons.)

[1] Applicants note that the "effective" filing date of the present national phase application is filing date of the corresponding PCT application. See MPEP §1893.03(b).

Furthermore, Applicants submit that JP '050 is removed as art under §102(a) art because the publication date of JP '050 (November 6, 2003) does not precede the earliest date of invention currently established by the present application (March 20, 2003, the filing date of Japanese Patent Application No. 2003-078846).

Thus, Applicants submit that JP '050 no longer qualifies as art against the present application.

Further, as discussed below, the other cited references fail to teach, or suggest, a method for producing high silicate glass including a phase-separating step of subjecting to heat treatment "borosilicate glass containing any one element of manganese, cerium, chromium, cobalt, and copper" as recited in claim 1.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 1, 2 and 6.

(B) Claims 6, 7, 9 and 13-16 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by, or in the alternative, under §103(a) as allegedly being unpatentable over Nakagawa et al., JP 57-205337 (hereinafter "JP '337") . Applicants respectfully traverse the rejection.

The rejection states that "Nakagawa et al. teaches methods of making high silicate glass (Abstract). If there is any difference between the product of Nakagawa et al. and the product of the instant claim(s) the difference would have been minor and obvious." Action, p. 4.

However, JP '337 teaches that "...a borate glass composed mainly of SiO_2, B_2O_3 and Na_2O..." is used. JP '337, Machine Translation, p. 3. There is no teaching, or suggestion, in JP '337 that the borate glass contains "any one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1.

Furthermore, Applicants note that claim 9 is a method claim, not a product-by-process claim, as asserted in the rejection.

Applicants submit that claims 6, 7, 9 and 13-16, at least by virtue of their dependency on independent claim 1, are patentable over JP '337.

For at least the above reasons, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 6, 7, 9 and 13-16.

(C) Claims 6, 7 and 13-16 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by or, in the alternative, under §103(a) as allegedly being unpatentable over Brown et al. (hereinafter "Brown"), U.S. Publication No. 2002/0018942. Applicants respectfully traverse the rejection.

The rejection states that "Brown et al. discloses high silicate glass (Figure 15). If there is any difference between the product of Brown et al. and the product of the instant claim(s) the difference would have been minor and obvious." Action, p. 5.

However, Brown teaches that "...a dry low hydroxyl radical fluorine-doped SiO_2 fused direct deposit vitrified synthetic silicon oxyfluoride glass..." is used. Brown, paragraph [0014]. Brown fails to teach, or suggest, that the silicon oxyfluoride glass contains "any one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1.

Applicants submit that claims 6, 7 and 13-16, at least by virtue of their dependency on independent claim 1, are patentable over Brown.

For at least the above reasons, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 6, 7 and 13-16.

(D) Claims 6, 7 and 13-16 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by, or in the alternative, under §103(a) as allegedly being unpatentable over Werner et al., EP 0601391A (hereinafter "EP '391"). Applicants respectfully traverse the rejection.

The rejection states that "Treuhand et al. teaches methods of making high silicate glass (Abstract). If there is any difference between the product of Treuhand et al. and the product of the instant claim(s) the difference would have been minor and obvious."[2] Action, p. 6.

However, EP '391 is directed to a doped quartz glass. EP '391 fails to teach, or suggest, that the doped quartz glass contains "any one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1.

Applicants submit that claims 6, 7 and 13-16, at least by virtue of their dependency on independent claim 1, are patentable over EP '391.

For at least the above reasons, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 6, 7 and 13-16.

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[2] The Examiner refers to EP 0601391A as "Treuhand et al." However, EP 0601391A belongs to Werner et al. Thus, Applicants refer to the reference as "EP '391" in order to avoid any ambiguity in the arguments made of the record, and to distinguish from JP 06-1999538A, which also belongs to Werner et al.

(E) Claims 6, 7, 9 and 13-16 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by, or in the alternative, under §103(a) as allegedly being unpatentable over Nakagawa et al., JP 57-188432 (hereinafter "JP '432"). Applicants respectfully traverse the rejection.

The rejection states that "Nakagawa et al. teaches methods of making high silicate glass (Abstract). If there is any difference between the product of Nakagawa et al. and the product of the instant claim(s) the difference would have been minor and obvious." Action, p. 6.

However, JP '432 teaches that "[a] borate glass composed mainly of SiO_2, B_2O_3 and Na_2O..." is used. JP '432, Machine Translation, p. 3. There is no teaching, or suggestion, in JP '432 that the borate glass contains "any one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1.

The Action states that "Nakagawa '432 states the glass is 'composed mainly of SiO_2, B_2O_3 and Na_2O' (Page 3-4, Detailed Specification). The term 'mainly' indicates there are other impurities in the glass that are insignificant in the process described." Action, p. 11-12.

However, Applicants submit that there is no motivation in JP '432 that the impurities are selected from "any one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1.

Furthermore, Applicants note that claim 9 is a method claim, not a product-by-process claim, as asserted in the rejection.

Applicants submit that claims 6, 7, 9 and 13-16, at least by virtue of their dependency on independent claim 1, are patentable over JP '432.

For at least the above reasons, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 6, 7, 9 and 13-16.

(F) Claims 3, 4, 6, 7, 9 and 13-16 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by, or in the alternative, under §103(a) as allegedly being unpatentable over Hood et al. (hereinafter "Hood"), US 2,106,744 A. Applicants respectfully traverse the rejection.

The rejection states that "Hood et al. teaches methods of making high silicate glass (Abstract). If there is any difference between the product of Hood et al. and the product of the instant claim(s) the difference would have been minor and obvious." Action, p. 7.

Hood is directed to treated borosilicate glass that includes a ternary system of R_2O-B_2O_3-SiO_2 wherein R is one of Li_2O, Na_2O and K_2O. There is no teaching, or suggestion, in Hood that the borosilicate glass contains "any one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1.

Further, as mentioned above, Applicants note that claim 9 is a method claim, not a product-by-process claim, as asserted in the rejection.

Applicants submit that claims 3, 4, 6, 7, 9 and 13-16, at least by virtue of their dependency on independent claim 1, are patentable over Hood.

For at least the above reasons, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 3, 4, 6, 7, 9 and 13-16.

(G) Claims 3, 4, 6, 7 and 9 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by, or in the alternative, under §103(a) as allegedly being unpatentable over Kanbe et al. (hereinafter "Kanbe"), JP 59-102832A. Applicants respectfully traverse the rejection.

The rejection states that "Seikosha et al. teaches methods of making borosilicate glass. If there is any difference between the product of Seikosha et al. and the product of the instant claim(s) the difference would have been minor and obvious."[3] Action, p. 8.

Kanbe is directed to a method for producing borosilicate glass. There is no teaching, or suggestion, in Kanbe that the borosilicate glass contains "any one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1.

Further, as mentioned above, Applicants note that claim 9 is a method claim, not a product-by-process claim, as asserted in the rejection.

Applicants submit that claims 3, 4, 6, 7 and 9, at least by virtue of their dependency on independent claim 1, are patentable over Kanbe.

For at least the above reasons, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 3, 4, 6, 7 and 9.

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[3] The Examiner refers to JP 59-102832A as "Seikosha et al." However, JP 59-102832A belongs to Kanbe et al. Thus, Applicants refer to the reference as "Kanbe" in order to avoid any ambiguity in the arguments made of the record.

(H) Claims 6, 7 and 13-16 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by, or in the alternative, under §103(a) as allegedly being unpatentable over The Handbook of Glass Manufacture, Vol. 2, 1984, pp. 746-77 (Document No. XP-002474811) (hereinafter "the Handbook"). Applicants respectfully traverse the rejection.

The rejection states that "[t]he Handbook of Glass Manufacture teaches the manufacturing of borosilicate and high silicate glass (Pages 746-747). If there is any difference between the product in The Handbook of Glass Manufacture and the product of the instant claim(s) the difference would have been minor and obvious." Action, p. 9.

However, Applicants submit that there is no teaching, or suggestion, in the Handbook that the borosilicate glass or the high silicate glass contain "any one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1.

Applicants submit that claims 6, 7 and 13-16, at least by virtue of their dependency on independent claim 1, are patentable over the Handbook.

For at least the above reasons, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 6, 7 and 13-16.

(I) Claims 3, 4, 6, 7 and 9 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by, or in the alternative, under §103(a) as allegedly being unpatentable over Werner et al., JP 06-1999538A (hereinafter "JP '538"). Applicants respectfully traverse the rejection.

Applicants note that JP '538 claims priority to EP '391. Thus, for the reasons given above with respect to EP '391, Applicants submit that JP '538 fails to teach, or suggest, a glass containing "any one element of manganese, cerium, chromium, cobalt, and copper" as recited in independent claim 1.

Claims 3, 4, 6, 7 and 9, at least by virtue of their dependency on independent claim 1, are patentable over JP '538.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 3, 4, 6, 7 and 9.

(J) Claims 1, 3, 6 and 7 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over JP '432. Applicants respectfully traverse the rejection.

i. INDEPENDENT CLAIM 1

Independent claim 1 is directed to a method for producing high silicate glass including (*inter alia*) "a phase-separating step of subjecting to heat treatment borosilicate glass containing any one element of manganese, cerium, chromium, cobalt, and copper, so as to phase-separate the borosilicate glass." Applicants submit that JP '432 fails to explicitly teach, or otherwise suggest, the above features recited in independent claim 1.

a. JP '432

As discussed above, JP '432 teaches the use of a borate glass including SiO_2, B_2O_3 and Na_2O. Further, there is no teaching, or suggestion, in JP '432 that the borate glass contains "any one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1.

Furthermore, there is no motivation that the impurities discussed on page 3 are selected from "any one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1.

For at least these reasons, Applicants submit that JP '432 fails to explicitly teach, or otherwise suggest, a method for producing high silicate glass including "a phase-separating step of subjecting to heat treatment borosilicate glass containing any one element of manganese, cerium, chromium, cobalt, and copper, so as to phase-separate the borosilicate glass" as recited in independent claim 1.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to independent claim 1, and claims 3, 6 and 7 at least by virtue of their dependency on independent claim 1.

(K) Claim 5 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over JP '432 in view of Elmer, U.S. Patent No. 3,113,855 in view of JP '337. Applicants respectfully traverse the rejection.

As discussed above, JP '432 and JP '337 (individually, or in combination) fail to teach, or suggest, that the disclosed borate glass

contains "any one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1.

Furthermore, Elmer is directed to a method of increasing the annealing point of high silica glass. Elmer fails to teach, or suggest, that the silica glass contains "any one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1. Thus, Elmer fails to cure the deficiencies of JP '432 and JP '337.

Claim 5, by virtue of its dependency on independent claim 1, is patentable over the combination of JP '432, Elmer and JP '337.

As such, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claim 5.

(L) Claims 11 and 12 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kanbe in view of Elmer in view of JP '337. Applicants respectfully traverse the rejection.

For the reasons given above, Kanbe, Elmer and JP '337 (individually, or in combination) fail to teach, or suggest, "borosilicate glass containing any one element of manganese, cerium, chromium, cobalt, and copper" as recited in independent claim 1.

Claims 11 and 12, by virtue of their dependency on independent claim 1, are patentable over the combination of Kanbe, Elmer and JP '337.

As such, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 11 and 12.

(M) Claim 10 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over JP '050 in view of Elmer in view of JP '337. Applicants respectfully traverse the rejection.

As discussed above, JP '050 no longer qualifies as art against the present application.

Furthermore, Elmer and JP '337 (individually, or in combination) fail to teach, or suggest, "borosilicate glass containing any one element of manganese, cerium, chromium, cobalt, and copper" as recited in independent claim 1.

Claim 10, by virtue of its dependency on independent claim 1, is patentable over the combination of JP '050, Elmer and JP '337.

As such, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claim 10.

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CONCLUSION

Accordingly, in view of the above, reconsideration of the rejections and allowance of each of claims 1-7 and 9-17 in connection with the present application is earnestly solicited.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachments:

English Translation of Japanese Patent Application No. 2003-078846
Statement of Accurate Translation